Glenn Research Center, Occupational Health Programs Manual

Chapter 15 – ERGONOMICS

NOTE: The current version of this chapter is maintained and approved by the Safety, Health, and Environmental Division (SHED). The revision date for this chapter is April 2006. The current version is maintained on the Glenn Research Center intranet at http://smad-ext.grc.nasa.gov/shed/pub/ohpm/ohpm-manual.pdf. Approved by: Occupational Health Branch Chief, Gayle Reid

PURPOSE

This chapter establishes the NASA Glenn Research Center Ergonomics Program. The program emphasizes efforts at the design stage of work processes to avoid risk factors that can lead to musculoskeletal problems.

APPLICABILITY

This chapter applies to all personnel at NASA Glenn Research Center at Lewis Field and Plum Brook Station, including, but not limited to civil servants, contractors, tenants and students.

DEFINITIONS

Anthropometry – The study of the sizes of human bodies or their parts, especially the comparison of sizes at different ages, in different races, etc.

Ergonomics – Ergonomics is an engineering discipline that addresses the effect work environments and tasks have on the worker. Ergonomics involves workstation set-up and design, body posture, prevention of computer related injuries and more. Ergonomics education is often included in physical therapy treatment for back and neck injury, and chronic pain. It is also known as human factors, and human factors engineering

OSHA Form 300 – The OSHA Form 300 is a form for employers to record all reportable injuries and illnesses that occur in the workplace, where and when they occur, the nature of the case, the name and job title of the employee injured or made sick, and the number of days away from work or on restricted or light duty, if any.

Musculoskeletal Disorders (MSD's) – Ergonomic injuries are often described by the term "musculoskeletal disorders" or "MSDs." This is the term of art in scientific literature that refers collectively to a group of injuries and illnesses that affect the musculoskeletal system; there is no single diagnosis for MSD's. The determination of whether any particular MSD is work-related may require the use of different approaches tailored to specific workplace conditions and exposures. Broadly speaking, establishing the work-relatedness of a specific case may include: taking a careful history of the patient and the illness; conducting a thorough medical examination; and characterizing factors on and off the job that may have caused or contributed to the MSD.

Static loading - Static loading or sustained exertions are physical effort or body postures that are held and require muscle contraction for more than a short time. As muscles remain contracted, the blood flow to the muscles is reduced.

Recommended Weight Limit (RWL) - The RWL is the principal product of the revised NIOSH lifting equation. The RWL is defined for a specific set of task conditions as the weight of the load that nearly all healthy workers could perform over a substantial period of time (e.g., up to 8 hours) without an increased risk of developing lifting-related LBP. By healthy workers, we mean workers who are free of adverse health conditions that would increase their risk of musculoskeletal injury

BACKGROUND

Work-Related Musculoskeletal Disorders are among the most prevalent lost time injuries and illnesses in almost every industry. Those involving the back are among the most costly occupational health problems. Causes span diverse workplaces and job operations. There are six key program elements to help eliminate ergonomic injuries:

- Management leadership and employee involvement
- Ergonomic hazard identification and information programs
- Job hazard analysis and control
- Training programs
- Medical management of emerging injuries
- Program evaluation

The National Institute for Occupational Safety and Health (NIOSH) is the federal agency that is responsible for conducting research and making recommendations for the prevention of work-related disease and injury. The Institute is part of the Center for Disease Control and Prevention (CDC).

NIOSH has developed the "Work Practices Guide" for manual lifting to help you determine which risk factors are problems. The NIOSH lifting guidelines consist of a formula to find the Recommended Weight Limit (RWL) for lifting.

Lifting tasks are one of the main contributors of work-related musculoskeletal disorders. Some of the many potential risk factors associated with lifts include excessive force, awkward postures, repetitiveness and static loading.

POLICY

It is the policy of the Glenn Research Center to manage and conduct research and development operations in a manner that eliminates or minimizes all potential hazards and to avoid accidents involving injury to personnel, damage to property, or loss of research operation time and effectiveness. The Ergonomics Policy is designed to minimize work related musculoskeletal disorders by developing a proactive Ergonomic Program. Glenn will provide the proper equipment, facilities, safety rules and procedures necessary for ergonomically safe working conditions.

RESPONSIBILITIES

It is the responsibility of all civil servants, tenants and support service contractors to use the equipment and facilities in a manner that will contribute to the effectiveness of the Ergonomics Program.

Glenn Occupational Health Branch

- Provides guidance on the requirements of federal, state and local Ergonomic regulations as well as standard Ergonomic guidelines
- Maintains the Ergonomic Program
- Responsible for all original Ergonomic Analysis Reports

Ergonomics Assessment Staff

- The Ergonomics assessment staff is composed of members of Safety, Health and Environmental Division and manufacturing laboratories
- The staff is trained in recognizing, evaluating and controlling ergonomic hazards that may be present at GRC
- Perform assessments of employees' work areas, based on requests
- Submits an ergonomic survey report, containing all ergonomic components of the employee's environment
- Conducts interviews, takes anthropometric and workstation measurements
- Analyzes the results of the assessment to determine if WSMDs exist, and to what degree. The analysis is used to determine how to eliminate or minimize the problems.
- Investigate OSHA Form 300 logs, worker compensation claims, references from Medical Services, and job tasks, which involve ergonomic risk factors as defined by NIOSH.

Supervisors

- Be familiar with Ergonomics Program requirements
- Comply with requirements and ensure that employees comply
- Utilize the Program as it relates to the needs of employees
- Identify ergonomic problems and concerns and notify the Occupational
- Health Coordinator for assistance with correcting those problems

Employees

- Know the signs and symptoms of Musculoskeletal Disorders (MSD's) and notify your supervisor
- Practice good posture and develop work habits that will reduce ergonomic injury
- Notify your supervisor about ergonomic concerns
- Serve on a safety and occupational health committee that makes recommendations to correct ergonomic hazards
- Work with the Ergonomic Program to learn and use skills to identify and analyze jobs for ergonomic hazards and make recommendations to correct them
- Practice good ergonomics away from the workplace

Occupational Health Coordinator (OHC)

- Provides guidance on the requirements of federal, state and local regulations and standard ergonomic guidelines
- Manages the Ergonomic Program
- Maintains all original Ergonomic Analysis Reports

Ergonomic Assessment Staff

- Are trained to recognize, evaluate and control ergonomic hazards at GRC
- Performs assessments, by request, of employee work areas
- Conducts interviews, performs anthropometric and workstation measurements
- Analyzes the results and determines how to eliminate or minimize the problem
- Investigates OSHA 300 logs, workers compensation claims, Medical Services referrals and job task risk factors

Procedures

The goal is to reduce MSD's by adapting the work environment to the person, rather than forcing the person to adapt to the work environment. Ergonomics considers the physical and mental capabilities and limits of the worker during the use of tools, equipment, methods, tasks and the environment.

1. Ergonomic Assessment Process

2. Contact the Occupational Health Coordinator to request an ergonomic assessment.

3. The requester is sent an Ergonomic Survey for job information, ergonomic data and operator comments. This helps to identify areas where ergonomic risk factors are present.

When the Ergonomics Survey is returned, it is reviewed and the requester is contact to make an appointment to perform an ergonomic assessment. An Ergonomic analysis Report is completed and returned to the requester and the requester's supervisor. It is the requester's responsibility to discuss the results with her/his supervisor.

Ergonomic Awareness Training

Ergonomics awareness training provides employees, managers and supervisors the knowledge and skills necessary to:

1. Recognize workplace risk factors for musculoskeletal disorders and understand general methods for controlling them.

2. Identify the signs and symptoms of musculoskeletal disorders that may result from exposure to risk factors.

3. Know the process used to control risk factors and how employees can participate

RECORDS

Ergo Records – (maintained by the Medical Service Contractor)

REFERENCES

NPD 1800.2B NASA Occupational Health Program
NPD 1810.2B NASA Occupational Medicine Program
NPR 1800.1 NASA Occupational Health Program Procedures

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